Amendments to the Claims

This listing of the claims replaces all prior versions of the claims in the application:

Listing of the Claims:

1.-64. **(Cancelled)**

65. **(Previously Presented)** An implantable biocompatible cell device, the device comprising:

i) a semipermeable membrane permitting the diffusion of a polypeptide comprising an amino acid sequence selected from the group consisting of:

A) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

B) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

C) a biologically active fragment of at least 50 contiguous amino acids of any of A) through B), a virus vector, or both; and

ii) a core containing cells transformed or transduced with a vector comprising a nucleic acid molecule encoding a polypeptide or its complementary sequence, said polypeptide comprising an amino acid sequence selected from the group consisting of:

D) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

E) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

F) a biologically active fragment of at least 50 contiguous amino acids of any of D) through E),

or a packaging cell line capable of producing an infective virus particle, said virus particle comprising a Retroviridae-derived genome comprising a 5' retroviral LTR, a tRNA binding

site, a packaging signal, a promoter operably linked to a polynucleotide sequence encoding a polypeptide comprising an amino acid sequence selected from the group consisting of:

G) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

H) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

I) a biologically active fragment of at least 50 contiguous amino acids of any of G) through H),

an origin of second strand DNA synthesis, and a 3' retroviral LTR.

66. **(Original)** The device of claim 65, wherein the semipermeable membrane is immunoisolatory.

67. **(Original)** The device of claim 65, wherein the semipermeable membrane is microporous.

68. **(Original)** The device of claim 65, wherein the device further comprises a matrix disposed within the semipermeable membrane.

69. **(Original)** The device of claim 65, wherein the device further comprises a tether anchor.

70. **(Previously Presented)** The device of claim 65, wherein said core comprises living packaging cells that secrete a viral vector for infection of a target cell, wherein the viral vector is a retrovirus, wherein the promoter regulates the expression of said polypeptide in the target cell, and wherein said semipermeable membrane comprises a permeable biocompatible material, said material having a porosity selected to permit passage of retroviral vectors of approximately 100 nm diameter thereacross, thereby permitting release of said viral vector from said device.

71. **(Previously Presented)** The device of claim 70, wherein the core additionally comprises a matrix and the packaging cells are immobilized by the matrix.

72. **(Previously Presented)** The device of claim 70, wherein the semipermeable membrane comprises a hydrogel or thermoplastic material.

73.-88. **(Cancelled)**

89. **(Previously Presented)** A method of treatment of a pathological condition in a subject comprising administering to an individual in need thereof a therapeutically effective amount of:

i) a polypeptide comprising an amino acid sequence selected from the group consisting of:

A) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

B) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

C) a biologically active fragment of at least 50 contiguous amino acids of any of A) through B); or

ii) an isolated nucleic acid sequence-encoding the polypeptide described in i); or

iii) an expression vector comprising the isolated nucleic acid molecule described in ii); or

iv) a composition of host cells transformed or transduced with the vector described in iii); or

v) an implantable biocompatible cell device according to claim; or

vi) a packaging cell line capable of producing an infective virus particle, said virus particle comprising a Retroviridae-derived genome comprising a 5' retroviral LTR, a tRNA binding site, a packaging signal, a promoter operably linked to a polynucleotide sequence encoding the polypeptide described in i), an origin of second strand DNA synthesis, and a 3' retroviral LTR.

90. **(Original)** The method of claim 89, wherein the pathological condition is an immunological disorder.

91 **(Previously Presented)** The method of claim 90, wherein the immunological disorder is selected from the group consisting of: infectious diseases, immune deficiencies, cancer, autoimmune disorders, multiple sclerosis, allergic reactions and conditions, and graft-versus-host disease.

92. **(Previously Presented)** The method of claim 89, wherein said pathological condition is a disease, disorder, or damage associated with the nervous system.

93. **(Previously Presented)** The method of claim 92, wherein said disease, disorder, or damage associated with the nervous system involves injury to the brain, brain stem, the spinal cord, peripheral nerves, or a combination thereof or is selected from the group consisting of stroke, traumatic brain injury, spinal cord injury, diffuse axonal injury, epilepsy, neuropathy, peripheral neuropathy and associated pain, and other symptoms.

94. **(Previously Presented)** The method of claim 92, wherein the disease, disorder, or damage associated with the nervous system involves degeneration of neurons and their processes in the brain, brain stem, the spinal cord, the peripheral nerves, or a combination thereof, or is selected from the group consisting of Parkinson's Disease, Alzheimer's Disease, senile dementia, Huntington's Disease, amyotrophic lateral sclerosis, neuronal injury associated with multiple sclerosis, and associated symptoms.

95.-97. **(Cancelled)**

98. **(Previously Presented)** The method of claim 92, wherein the disease, disorder, or damage associated with the nervous system involves dysfunction or loss or both of neurons in the brain, brain stem, the spinal cord, the peripheral nerves, or a combination thereof, or is selected from the group consisting of conditions caused by metabolic diseases, nutritional

deficiency, toxic injury, malignancy, genetic or idiopathic conditions, diabetes, renal dysfunction, alcoholism, chemotherapy, chemical agents, drug abuse, vitamin deficiency, infection, and combinations thereof.

99. **(Original)** The method of claim 98, wherein the disease is peripheral neuropathy and associated pain.

100. **(Previously Presented)** The method of claim 92, wherein the disease, disorder, or damage associated with the nervous system involves degeneration or sclerosis of glia, oligodendrocytes, astrocytes or Schwann cells in the brain, brain stem, the spinal cord, the peripheral nerves, or a combination thereof, or is selected from the group consisting of multiple sclerosis, optic neuritis, cerebral sclerosis, post-infectious encephalomyelitis, and epilepsy and associated symptoms.

101. **(Previously Presented)** The method of claim 100, wherein the disease or disorder is selected from the group consisting of multiple sclerosis, sensory ataxus, neurodegenerative spinocerebellar disorders, hereditary ataxis, cerebellar atrophies, and alcoholism.

102. **(Previously Presented)** The method of claim 92, wherein the disease, disorder, or damage associated with the nervous system involves the retina, photoreceptors, associated nerves, or a combination thereof, or is selected from the group consisting of retinitis pigmentosa, macular degeneration, glaucoma, diabetic retinopathy, and associated symptoms.

103. **(Previously Presented)** The method of claim 92, wherein disease, disorder, or damage associated with the nervous system involves the sensory epithelium and associated ganglia of the vestibuloacoustic complex or is selected from the group consisting of noise-induced hearing loss, deafness, tinnitus, otitis, labyrintitis, hereditary and cochleovestibular atrophies, Menieres Disease, and associated symptoms.

104. **(Original)** The method of claim 89, wherein the subject is a human being.

105. **(Previously Presented)** A method of preventing apoptosis in a mammalian neuronal cell, said method comprising exposing said neuronal cell to a polypeptide comprising an amino acid sequence selected from the group consisting of:

a) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

b) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

c) a biologically active fragment of at least 50 contiguous amino acids of any of a) through b),

thereby preventing apoptosis in a mammalian neuronal cell.

106. **(Previously Presented)** A method of enhancing survival of a mammalian neuronal cell, said method comprising exposing said neuronal cell to a polypeptide comprising an amino acid sequence selected from the group consisting of:

a) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

b) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

c) a biologically active fragment of at least 50 contiguous amino acids of any of a) through b),

thereby enhancing survival of a mammalian neuronal cell.

107. **(Previously Presented)** A method of generating a neuron, said method comprising exposing a neuronal precursor cell or a neuronal stem cell to a polypeptide comprising an amino acid sequence selected from the group consisting of:

a) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

b) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

c) a biologically active fragment of at least 50 contiguous amino acids of any of a) through b),

thereby generating a neuron.

108. **(Previously Presented)** A method of expanding a composition of mammalian cells, comprising administering to said composition the polypeptide comprising an amino acid sequence selected from the group consisting of:

a) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

b) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

c) a biologically active fragment of at least 50 contiguous amino acids of any of a) through b);

or transducing/transfecting the cells with an expression vector comprising a nucleic acid molecule encoding a polypeptide or its complementary sequence, said polypeptide comprising an amino acid sequence selected from the group consisting of:

d) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

e) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

f) a biologically active fragment of at least 50 contiguous amino acids of any of d) through e),

thereby expanding a composition of mammalian cells.

109. **(Previously Presented)** A method of differentiating a composition of mammalian cells, comprising administering to said composition the polypeptide comprising an amino acid sequence selected from the group consisting of:

a) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

b) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

c) a biologically active fragment of at least 50 contiguous amino acids of any of a) through b);

or transducing/transfecting the cells with an expression vector comprising a nucleic acid molecule encoding a polypeptide or its complementary sequence, said polypeptide comprising an amino acid sequence selected from the group consisting of:

d) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

e) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

f) a biologically active fragment of at least 50 contiguous amino acids of any of d) through e),

thereby differentiating a composition of mammalian cells.

110.-112. **(Cancelled)**

113. **(Previously Presented)** An isolated polypeptide selected from the group consisting of AA_{128}-AA_{293} of SEQ ID No 3, AA_{121}-AA_{293} of SEQ ID No 3, AA_{129}-AA_{294} of SEQ ID No 8, AA_{122}-AA_{294} of SEQ ID No 8, AA_{126}-AA_{291} of SEQ ID No 13, AA_{119}-AA_{291} of SEQ ID No 13, and variants of said polypeptides, wherein any amino acid specified in the chosen sequence is changed to a different amino acid, provided that no more than 15 of the amino acid residues in the sequence are so changed.

114. **(Original)** The isolated polypeptide of claim 113, wherein the changed amino acids are selected from those designated as unconserved, weakly conserved or strongly conserved in Figure 3a.

115. **(Original)** An isolated polypeptide selected from the group consisting of SEQ ID No 19, 20, 21, 22, 23, and 24, and variant of said polypeptides, wherein any amino acid specified in the chosen sequence is changed to a different amino acid, provided that no more than 15 of the amino acid residues in the sequence are so changed.

116. **(Original)** The isolated polypeptide of claim 115, wherein the changed amino acids are selected from those designated as unconserved, weakly conserved or strongly conserved in Figure 3a.

117. **(Original)** An isolated polypeptide selected from the group consisting of:

i) AA_{30}-AA_{288} of SEQ ID No 3, and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{25}-AA_{293} of SEQ ID No 3;

ii) AA_{28}-AA_{286} of SEQ ID No 13 and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{23}-AA_{291} of SEQ ID No 13;

iii) AA_{31}-AA_{289} of SEQ ID No 8 and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{26}-AA_{294} of SEQ ID No 8; and

iv) variants of said polypeptides, wherein any amino acid specified in the chosen sequence is changed to a different amino acid, provided that no more than 20 of the amino acid residues in the sequence are so changed.

118. **(Previously Presented)** An isolated polypeptide selected from the group consisting of:

i) AA_{171}-AA_{288} of SEQ ID No 3, and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{165}-AA_{293} of SEQ ID No 3;

ii) AA_{169}-AA_{286} of SEQ ID No 13 and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{164}-AA_{291} of SEQ ID No 13;

iii) AA_{172}-AA_{289} of SEQ ID No 8 and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{167}-AA_{294} of SEQ ID No 8;

iv) variants of said polypeptides, wherein any amino acid specified in the chosen sequence is changed to a different amino acid, provided that no more than 10 of the amino acid residues in the sequence are so changed.

119. **(Original)** An isolated polypeptide selected from the group consisting of:

i) AA_{30}-AA_{118} of SEQ ID No 3, and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{25}-AA_{123} of SEQ ID No 3;

ii) AA_{28}-AA_{116} of SEQ ID No 13 and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{23}-AA_{121} of SEQ ID No 13;

iii) AA_{31}-AA_{119} of SEQ ID No 8 and polypeptides having from one to five extra amino acids from the native sequence in one or both ends, up to AA_{26}-AA_{124} of SEQ ID No 8; and

iv) variants of said polypeptides, wherein any amino acid specified in the chosen sequence is changed to a different amino acid, provided that no more than 10 of the amino acid residues in the sequence are so changed.

120. **(Previously Presented)** The polypeptide of claim 117 wherein the changed amino acids are selected from those designated as unconserved, weakly conserved or strongly conserved in Figure 3a.

121. **(Previously Presented)** An isolated polynucleotide coding for a polypeptide according to claim 113.

122. **(Previously Presented)** The polypeptide of claim 118, wherein the changed amino acids are selected from those designated as unconserved, weakly conserved or strongly conserved in Figure 3a.

123. **(Previously Presented)** The polypeptide of claim 119, wherein the changed amino acids are selected from those designated as unconserved, weakly conserved or strongly conserved in Figure 3a.

124. **(Previously Presented)** An isolated polynucleotide coding for a polypeptide according to claim 115.

125. **(Previously Presented)** An isolated polynucleotide coding for a polypeptide according to claim 117.

126. **(Previously Presented)** An isolated polynucleotide coding for a polypeptide according to claim 118.

127. **(Previously Presented)** An isolated polynucleotide coding for a polypeptide according to claim 119.

128. **(New)** A method of protecting a mammalian neuronal cell from cell death, said method comprising exposing said neuronal cell to a polypeptide comprising an amino acid sequence selected from the group consisting of:

a) the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24;

b) a sequence variant having at least 80 % identity to the amino acid sequence selected from the group consisting of SEQ ID No. 3, 4, 5, 8, 9, 10, 13, 14, 15, 19, 20, 21, 22, 23, and 24; and

c) a biologically active fragment of at least 50 contiguous amino acids of any of a) through b),

thereby enhancing survival of a mammalian neuronal cell.